The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

February 7, 2013

Waste Management Division Update

RE: Revised Vapor Intrusion Screening Levels and TCE Update

To All Professionals:

The New Hampshire Department of Environmental Services (DES) is pleased to provide the following updates for evaluating the vapor intrusion pathway. The enclosed updates should be considered an addendum to the Vapor Intrusion Guidance originally dated July 2006.

Revised Vapor Intrusion Screening Levels

Category GW-2 groundwater is considered to be a potential source of vapors of contaminants to indoor air. The GW-2 values and derivation presented in 2006 have been modified to include updated inhalation risk based values, indoor air method reporting limits, indoor air background values and use of a generic groundwater to indoor air attenuation factor. The updated GW-2 Methodology is enclosed.

Table 1 Vapor Intrusion Screening Levels, enclosed, has been revised to reflect the updates noted above. Because a number of the updated inhalation risk based values are below the TO-15 low level scan mode reporting limits, DES recommends the use of either selected ion monitoring (SIM) mode or simultaneous scan/SIM mode to achieve the lower detection levels necessary to identify certain compounds listed in Table 1.

TCE Update

The United States Environmental Protection Agency (USEPA) posted a Toxicological Review of trichloroethylene (TCE) on its Integrated Risk Information System (IRIS) on September 28, 2011. The review contains both carcinogenic and non-carcinogenic toxicity factors for use in developing screening levels and site-specific risk assessments. The reference concentration (RfC) represents the inhalation route non-cancer toxicity factor. The TCE RfC value of 2 $\mu g/m^3$ is based on the mid-point of two candidate RfCs with the critical effects being a decrease in thymus weight, and an increase in fetal cardiac malformations (FCM) during the first trimester of pregnancy.

The RfC is an estimate, with uncertainty spanning perhaps an order of magnitude, of a continuous inhalation exposure to the human population, including sensitive subgroups, that is likely to be without an appreciable risk of deleterious effects during a lifetime. The RfC considers both toxic effects of the respiratory system and effects peripheral to the respiratory system. RfCs are generally used to evaluate chronic exposures, however, the FCM critical effect is a developmental endpoint as a result of short-term exposure during the first trimester of pregnancy.

DES considers the revised TCE indoor air screening levels for residential and commercial scenarios of 0.4 µg/m^3 and 1.8 µg/m^3, respectively, protective of the FCM effect that could result from short term exposure to TCE during the first trimester of pregnancy. If the detected concentration of TCE exceeds 2.0 µg/m^3 for a residential exposure scenario or 8.8 µg/m^3 for a commercial exposure scenario and women of child bearing age are present, DES recommends that the women be informed of the potential short term risk and be relocated as these levels would represent a level of significant risk associated with the FCM effect during the first trimester of pregnancy.

If you have any questions or require additional information regarding these updates please contact Robin Mongeon, P.E. at (603) 271-7378, E-mail: Robin.Mongeon@des.nh.gov

Sincerely,

H. Keith DuBois, P.G., Assistant Director
Waste Management Division

Enclosure: GW-2 Methodology - Revised February 2013
Table 1 - Vapor Intrusion Screening Levels Revised February 2013

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